

DIMENSIONS OF CENSUS DATA USE

Introduction

The preceding sections acquaint the user of 1970 census data with the availability and accessibility of the data. Census data use is equally important. While there are as many different uses of data as there are different problems confronting users, it is possible to describe uses which are relevant across disciplines and organizations, as well as discuss and give illustrative examples of particular uses associated with such activities as school planning, housing construction, and marketing.

This section does not include mechanical or statistical techniques which may be employed; that is, there is no discussion of what software to use with census summary tapes, what statistical measures or techniques to employ, how to construct statistical tables, prepare maps by computers, conduct a matching study, or build a geographic base file.

This section discusses how the data may be applied in decision-making processes. In order to use the large quantity of available data effectively, there must be an awareness of what data are important in understanding and solving particular problems and their applications. Fortunately, there are some common applications of census data among most users. Certain types of use have relevance to the problem definition, program assessment, and planning operations of any user. Common usage can also be found among users belonging to the same or related functional areas of government, having the same academic research interests, sharing the same concerns in market planning, and so on.

The following discussion provides a general description and some specific examples of data uses relevant to several dimensions.

Dimension I - General Census Data Uses

In discussions of census data and their use, reference is sometimes made to certain general types or categories of data use. By way of introducing the subject of use and because these broad use categories have wide applicability, they will be briefly described here.

Benchmark

Census data, for areas ranging from city blocks to the entire Nation, serve as a valuable base or benchmark for data collection efforts which follow. The results of sample surveys can be

compared with census results both to assess the reasonableness of the survey data and to detect and measure changes in the characteristics being investigated.¹

Sampling frame

Census data, reasonably current or updated, may be used as the guide or frame for sampling. They provide detailed information on small areas, structures, and categories of people which may be adequate for designing purposive samples to collect data relevant to particular problems.²

Target definition

Normally, a census data user will have a fairly definite problem or objective in mind when he turns to census data resources. It may be to assess the need for public housing, to draw school district boundaries, or to choose a location for a branch store. Census data can often be used to specify or define geographical areas and their characteristics relevant to the user's problem or objective. For example, if the user's target is inadequate housing, he can use census data on overcrowding, lack of certain facilities, and age of structure to help describe existing conditions and to pinpoint city blocks and neighborhoods needing improvement.

Program planning

Census data are often a basic element in the development of community programs and in business planning. After the data have been used in defining existing characteristics of the subject under study, they are normally reconsidered for any contribution they can make to the development of effective plans. Continuing with the example used above, a local official preparing plans for community public housing would use census data on size and income of families in inadequate housing, number of inadequate units, occupations of potential residents, and similar topics to aid in deciding the number and size of units to be built, their location, and the need for additional facilities such as schools, shopping areas, and playgrounds.

Dimension II - Functional Areas of Use

Several of the illustrations of data use in particular functional areas given here are drawn from the local governmental level. Similar functional areas are found at the State and Federal levels of government. A few examples of data use in market research are also included in this section.

Education

Public school officials concerned with all levels of education will find census data useful in evaluating past performance, assessing the dimensions of problem areas, and planning appropriate programs. Complete-count and sample census data, ranging from counts by age to indicators of social characteristics of small areas, are potentially useful.

1. Information on the size of particular age groups and on numbers enrolled in "regular" schools can be of considerable use in assessing a school system's adequacy in reaching the target population or age group of each educational level. Enrollment figures will be available for particular age groups, e.g., 3-4, 5-6, 20-21, from the Fourth Count summary tape file. These figures or local enrollment data can be used with age group totals from the Second Count summary tape file for evaluations such as the following:

Comparison of the enrollment of 16 to 17 year-olds with the total for this age group gives a picture of the area's dropout situation and might indicate a need for special corrective measures.

Local school officials might also be interested in enrollment figures for the 18 to 19 and 20 to 21 year-old age groups. Contrasted with totals, these enrollment figures might suggest a need for establishment or expansion of community college facilities.

2. Such data on target populations is also of use in program planning concerned with building, classroom, teacher, and equipment requirements. However, more detail is needed. Single years of age data for census tracts are carried in the Second Count summary tape file. If finer geographic detail is required in order to locate facilities or draw school boundaries more efficiently, data on various age groupings are available for blockgroups or enumeration districts in the First Count file and for blocks in the Third Count file.

3. Data on race and ethnic composition of the school age population may be needed to plan integrated school facilities or special programs for various groups. Single years of age by race is available in the Second Count file, and age groups for Puerto Ricans and other Spanish Americans in certain tracts appear

in the Fourth Count file, along with number of foreign born under 21.

4. Local school systems can use census data as part of their educational programs. Instruction in demography and in city and regional planning seems increasingly needed if tomorrow's adults are to cope with the problems of their society in an informed manner. Census data are a prime source of information needed to discuss population trends, study alternative public policies relating to urban renewal and transportation, report on the social conditions of a community, etc.

Urban Planning and Development

The broad concerns of urban planning and development necessitate access to a comprehensive array of data describing the characteristics of particular geographic areas ranging from blocks to SMSA's. As in other functional areas, summary census data have relevance for problem definition, assessment of past performance, and program planning. At a minimum, they should provide a first definition of problems to be tackled and suggest topics which merit special surveys; at a maximum, they may serve as the basis for definite actions.

1. Statistical profiles are a convenient and effective way of presenting summary data on a particular area. Such profiles aid in the assessment of the current situation and make comparisons of areas relatively easy, as in the following cases:

An urban renewal agency interested in developing a method for identifying "blighted" neighborhoods could prepare profiles for a number of block groups classified as blighted, as well as for a number of block groups considered not blighted. By comparing the profiles for two groups of areas, specific items could be identified which show the greatest variation. It might be possible to construct a "blight index" from these items which could be used to select other blighted areas.³

An urban planning organization interested in defining neighborhoods, that is, areas sharing similar housing problems, family composition, age distribution, income level, and other characteristics, can determine the boundaries of such areas by combining block groups and tracts which,

on the basis of profiles, seem homogeneous. Such neighborhoods would serve as a logical focus of attention for assessing needs for program action.

2. Profiles or collections of indicators are useful primarily in the early stages of planning when an overview and basis for comparing various areas is important. Once a particular area is targeted upon, more detailed information will be needed and the geographic area may be further defined. An urban planner, interested in closely considering a number of tracts or smaller areas to select those most in need of housing improvement or new units, can utilize information such as counts of housing units lacking specified plumbing facilities and counts of occupied units by value. For example:

In a Technical Assistance Bulletin concerning measures of living quality in Model Neighborhoods, HUD suggests that a number of conditions reflecting housing quality, cost, crowding, and construction be determined before initiating a Model Neighborhood project. Specific amounts of change in these initial conditions could then be established as objectives or goals of the project. Census data available from summary tape files are adequate for determining some of the initial conditions. These include number and proportion of families by characteristics of the housing unit and number and proportion of families by tenure of housing unit, both from the Second Count summary tape file.⁴

Health and Welfare

As with the other functional areas considered, the health and welfare area draws upon census data for use in problem definition, assessment of existing conditions, and program planning. Area profiles prepared with summary data can be useful tools, particularly when a basis for comparing a number of areas is needed. Area profiles enable focusing on features associated with deficiencies in on-going public services, and areas having such features may be targeted for expansion in services or facilities.

In Minneapolis, the Planning Commission and the Community Health and Welfare Council combined staff efforts during 1964-

1965 to develop area profiles based largely on 1960 census data, and profiles of many social agency services to these particular areas. The profiles of social services reflect the number of individuals receiving each type of service per 1,000 persons who are likely to make use of the services. Analysis show that areas in Minneapolis which have a low proportion of young people participating in Scouting activities, for example, generally have poor housing, low income and education attainment, and high incidences of delinquency and dependency.⁵

In New Haven, Connecticut, a Health Information System has been developed through the cooperative efforts of the Connecticut Department of Health and the New Haven Census Use Study. The system's resources include summary data from a special census taken in that city, as well as the results of a Family Health Survey, birth and infant death records for July 1966 through September 1967, and hospital obstetrical records for about the same period from a major hospital. Data from these sources, aggregated to the blockgroup level, are interrelated and catalogued in terms of a large cross-section of social, socioeconomic, migratory, fertility, and health indicators. Indicators are used as the basic unit of measurement so that the large amount of information can be analyzed. The system will be helpful in selecting areas in need of intensive medical care units and child daycare centers, examining socioeconomic characteristics of families which relate to deficient birth weight and child disease, surveying family health needs, and similar projects.⁶

Market Research

Government agencies are not the only organizations that use census data. Census data is also valuable in the area of market research.

Information on the characteristics of small areas is probably the most valuable contribution made by census data to market research. There are a variety of ways in which small-area data can be utilized. A business concern, with some knowledge of

where its clientele is concentrated, may find it useful to determine what portion of the total population in a particular area it is reaching. For areas where the concern feels effort should be made to enlarge its "share" of the total number of possible customers, census data on ethnic, educational, migratory, occupational, and other characteristics may suggest effective promotional approaches.

Census data for small areas are often of great value to businesses which find it to their advantage to emphasize reaching a particular segment of the population. A supermarket chain may use census data on family size and age distribution, as well as other characteristics, to locate areas with young and growing families as possible sites for new units. Other types of businesses, department stores, for example, might consider special advertising efforts to reach households in such areas.

Census data relevance to market research is not limited to describing characteristics of small areas. A supermarket chain may want to develop a store location and marketing strategy for an urbanized area or an SMSA so that changes in existing marketing areas can be anticipated, necessary changes in existing units planned, and potential areas for new locations detected. Census data, particularly when combined with other economic and social data, are suggestive of such things as the overall growth or decline of a city, changing population concentration and income distribution from one part of the area to another, and new housing patterns and developments.⁷

Dimension III - Community Characteristics

Essentially all efforts at data analysis involve the use of statistical ratios. Expressing relationships between quantitative variables in ratio form is basic to summarizing and interpreting social, economic, and business data. It is important, then, to give attention to the use of ratios involving census data as indicators or indices of community characteristics. The application of ratios in the analysis of public use sample data and summary tabulations will be briefly discussed here.

Certain public use sample files from the 1970 census will include a collection of approximately

55 indicators of neighborhood characteristics as part of the record for each household. The "neighborhood" described will be approximately the size of a tract in population. The inclusion of these indicators will allow researchers to correlate data on individuals with indicators of environmental characteristics on a scale never before possible.

The development of indicators of neighborhood characteristics is a familiar operation for anyone who uses summary tabulations of census data. Printed reports and summary tapes include a limited number of summary tabulations already calculated, but most are prepared as needed by users.

Area profiles are a basic means for presenting characteristics. Such presentation enables the user to clearly describe an area within the limitations imposed by the data available and facilitates comparison with other areas.

For example, an extremely thorough and effective collection of area profiles was prepared for enumeration districts, tracts, and larger areas of the Washington, D.C. Metropolitan Area after the 1960 census. Each profile included 38 indicators, such as sex ratio, young adults 18 to 29 as a percent of the population 18 to 64, and an index of overcrowding, as well as scales allowing comparison with jurisdictional and metropolitan averages for each indicator. Data presented in this way could be easily used in efforts such as: (1) Determining the extent to which certain conditions are present in particular neighborhoods; (2) classifying areas into homogeneous groupings on the basis of comparable indicator ratings; and (3) assessing the potential for marketing particular merchandise.⁸

Conclusion

There is wide acknowledgement that the decennial census provides data which are extremely useful to governmental, academic, and business communities. So useful, in fact, that there appears to be substantial support for a quinquennial census. In spite of this long established high regard for the census, efforts to describe the uses of data resulting from the census have been fragmentary and usually of a very general

nature. Scattered through the literature of various disciplines and professions, items do appear occasionally which deal specifically with selected data uses. Also, textbooks and related materials sometimes deal in broad terms with census data use in discussion of basic statistical sources.

There is a clear need for material which provides detailed treatment of the uses of census

data. Such a resource would be of value to the experienced data user as a checklist of the numerous kinds of uses and as a possible source of new ideas; someone not well acquainted with census data use would find such material a helpful introduction and a reference source of continuing value. In connection with this aim, the Bureau plans to request feedback from census data users, particularly summary tape users, and make such information generally available.

Footnotes

- ¹ Handbook of Population Census Methods, Vol. II, "Economic Characteristics of the Population," Statistical Office of U.N., Series F, No. 5, Rev. 1, 1958.
- ² Principles and Recommendations for the 1970 Population Census, Statistical Office of the U.N., Series M, No. 44, 1967.
- ³ Area Profile Manual for the Washington Standard Metropolitan Statistical Area, Metropolitan Population Project, Health and Welfare Council of the National Capital Area, July, 1962, pp. 22-23.
- ⁴ Technical Assistance Bulletin No. 2, Subject: Measures of Living Quality in Model Neighborhoods, U.S. Department of Housing and Urban Development, MCGR G3110.1, July, 1968, pp. 23-26.
- ⁵ Profile of Minneapolis Communities, September, 1964, and Profile of Social Agency Services, June, 1965, Community Health and Welfare Council, Minneapolis, Minnesota.
- ⁶ John C. Deshaies, Census Data for Health Planning, (a paper presented to the Urban and Regional Information Systems Association), New Haven Census Use Study, Bureau of the Census, September, 1968.
- ⁷ Guide to Store Location Research With Emphasis on Super Markets, Curt Kornblau, Ed., sponsored by Super Market Institute, Inc., 1968, pp. 4 and 99.
- ⁸ Users' Guide to Dimensions of Neighborhoods and Area Profile Manual, prepared by the Metropolitan Population Project, Edward B. Olds, Director, Health and Welfare Council of the National Capital Area, 1962.

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